

Pediatric Nutrition Guidelines (Birth to Six Years) for Health Professionals

This document outlines evidence-based nutrition and feeding guidelines and red flags for healthy, full-term infants and children up to six years of age. Further investigation, including possible referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up, may be warranted for infants and children who do not meet guidelines or present with red flags.

Definitions

Milestones - Marker or point in development related to feeding. Milestones for pre-term children are based on corrected age¹

Guidelines - Evidence-based recommendations for nutrition and feeding. Guidelines for pre-term children are based on corrected age¹

Red Flags - Findings that may require additional action, investigation and/or referral

Birth to 6 Months	
<p>MILESTONES</p> <p>By 2 months:</p> <ul style="list-style-type: none"> Has a different cry for hunger² <p>By 4 months:</p> <ul style="list-style-type: none"> Holds head steady when supported in a sitting position² <p>By 6 months:</p> <ul style="list-style-type: none"> Has better head control⁵ Can sit up and lean forward⁵ Can let caregiver know when they are full (e.g., turns head away)⁵ Can pick up food and try to put it in their mouth⁵ <p>See Additional Information – Parent influences on eating habits on page 8</p>	<p>GUIDELINES</p> <p>Fluids:</p> <ul style="list-style-type: none"> Breastfeed exclusively for the first 6 months^{4,5,6*} When feeding at the breast is not possible, offer mother’s own expressed breastmilk⁵ Feed based on infant’s cues, referred to as ‘infant-led’ or ‘on-cue’ feeding (feed on demand, day and night)⁵ Give vitamin D supplement of 400 IU daily to infants who are breastfed or receiving breastmilk⁵ Avoid additional water unless medically indicated⁵ Avoid juice or other liquids⁵ <p>Food:</p> <ul style="list-style-type: none"> Introduction of solid foods should be led by infant’s signs of developmental readiness and may be a few weeks before or just after the 6th month. Refer to the 6 to 9 Months section for more information on solid foods and signs of readiness.⁶ See Additional Information – Food allergies on page 7 First foods should be iron-rich (meat, meat alternatives, iron-fortified infant cereals).⁵ See Additional Information – Iron on page 7 Avoid honey until 1 year of age, including pasteurized or cooked, as it may cause infant botulism⁵ <p><small>*If parent/caregiver has made the informed decision to formula feed, see Additional Information – Infant formula on page 6</small></p> <p>RED FLAGS</p> <ul style="list-style-type: none"> Has < 6 wet diapers each day after 5 days of age³ Loses > 10% of birth weight within the first 2 weeks.³ Or by 2 weeks, does not regain birth weight⁵ or does not gain ≥ 20 g per day³. See Additional Information – Growth monitoring on page 5 Consumes cow’s or goat’s milk, soy or rice beverage, or homemade, evaporated milk formula⁵ Consumes water, juice, herbal teas or other liquids⁵ Consumes infant cereal or other pureed foods < 4 months⁸, including added cereal or other pureed foods in a bottle⁹ Without medical indication, consumes formula thickened with infant cereal⁵ Uses a propped bottle⁵ or is not supervised during feeding⁵ Feeding is forced or restricted⁵

Pediatric Nutrition Guidelines (Birth to Six Years) for Health Professionals

This document outlines evidence-based nutrition and feeding guidelines and red flags for healthy, full-term infants and children up to six years of age. Further investigation, including possible referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up, may be warranted for infants and children who do not meet guidelines or present with red flags.

6 to 9 Months	
<p>MILESTONES</p> <p>Signs of developmental readiness for solid foods:</p> <ul style="list-style-type: none"> • Has better head control⁵ • Can sit up and lean forward⁵ • Lets caregiver know when they are full (e.g., turns head away)⁵ • Can pick up food and try to put it in their mouth⁵ • Has vertical jaw movement (munching)¹⁰ • Has some tongue protrusion when beginning to eat solid foods which decreases with experience¹⁰ • May still have early gag reflex until around 7 months³ <p>See Additional Information – Parent influences on eating habits on page 8</p>	<p>GUIDELINES</p> <p>Fluids:</p> <ul style="list-style-type: none"> • Continue to breastfeed^{6*} • Continue to give a vitamin D supplement of 400 IU daily to infants who are breastfed or receiving breastmilk⁶ • Delay fluid cow’s milk until 9-12 months due to its low iron content and risk of iron deficiency with early introduction⁶ • Limit or avoid juice. If given, offer only as part of a meal or snack, and provide it in an open cup, not a bottle or a sippy cup. 125-175 mL (4-6 oz) per day of 100% fruit juice (not fruit drink) is the maximum⁶ • Can offer water from an open cup⁶ <p>Foods:</p> <ul style="list-style-type: none"> • Introduce solid foods when the signs of developmental readiness appear, which may be a few weeks before or just after the 6th month.^{5,6} Beyond 6 months, further delay in introducing solid foods increases the risk of iron deficiency^{5,6} • Can give either breastmilk or solid foods first at any meal⁶ • Provide lumpy, soft-cooked, finely minced, pureed, mashed and ground textures from 6 months to match skills of the infant⁶ • Offer finger foods as early as 6 months to encourage self-feeding from the start (soft, cut-up family foods such as pieces of cooked vegetables; ripe fruit such as banana or pear; finely minced, ground or mashed cooked meat, deboned fish, and poultry; grated cheese and bread crusts or toast)⁶ • Offer iron-rich foods first and continue to offer them 2 or more times a day.^{4,6} See Additional Information - Iron on page 7 • Introduce a variety of vegetables, fruit, grains and full-fat milk products (except fluid milk) in any sequence after iron-rich foods⁶ • New foods can be introduced every day for most foods (vegetables, fruit, meat, most grains)⁶ • New foods that are common food allergens (eggs, milk, mustard, peanuts, seafood, sesame, soy, tree nuts, wheat) can be introduced 1 at a time with a wait of 2 days before introducing other common food allergens, regardless of family history of allergy.^{5,6} Once introduced with no allergic reaction, offer these foods regularly to maintain tolerance^{6,26,27} • Offer a quantity of food based on the principles of responsive feeding (e.g., sensitive to the hunger and satiety cues)⁶ • Provide 2-3 larger feedings (meals) and 1-2 smaller feedings (snacks) per day, depending on the child’s appetite⁶ • Avoid honey until 1 year of age, including pasteurized or cooked, as it may cause infant botulism⁶ <p><small>*If parent/caregiver has made the informed decision to formula feed, see Additional Information – Infant formula on page 6</small></p> <p>RED FLAGS</p> <ul style="list-style-type: none"> • Growth concerns. See Additional Information – Growth monitoring on page 5 • Does not consume iron-rich foods daily⁶ • Consumes cow’s or goat’s milk, vegetarian beverages (e.g., soy, rice, almond), or homemade formula as milk source⁶ • Consumes fruit drinks/punch, sports drinks, pop or beverages containing artificial sweeteners or caffeine (e.g., coffee, tea, hot chocolate)⁶ • Consumes > 175 mL (6 oz) juice per day⁶ • Not supervised during feeding⁶ • Feeding is forced or restricted⁶

Pediatric Nutrition Guidelines (Birth to Six Years) for Health Professionals

This document outlines evidence-based nutrition and feeding guidelines and red flags for healthy, full-term infants and children up to six years of age. Further investigation, including possible referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up, may be warranted for infants and children who do not meet guidelines or present with red flags.

9-12 Months	
<p>MILESTONES</p> <ul style="list-style-type: none"> Between 8-12 months, lateral movements of the tongue are developed allowing food to be moved to the teeth (enables biting and chewing of chopped foods and a greater variety of finger foods)⁶ Uses jaw and tongue to bite and mash a variety of textures³ Tries to use a spoon and may demand to spoon-feed self¹¹ Feeds self by holding small foods between thumb and forefinger^{2,3} <p>See Additional Information – Parent influences on eating habits on page 8</p>	<p>GUIDELINES</p> <p>Fluids:</p> <ul style="list-style-type: none"> Continue to breastfeed^{6*} Give vitamin D supplement of 400 IU daily for infants who are breastfed or receiving breastmilk⁶ At 9-12 months and when a child is eating a variety of iron-rich foods, homogenized (3.25%) cow's milk can be introduced⁶ For the non-breastfed infant, homogenized (3.25% M.F.) cow's milk can replace formula at this time. 500 mL (16 oz) per day should be offered. Intake should not exceed 750 mL (24 oz) per day.⁶ Pasteurized, full-fat goat's milk, with added folic acid and vitamin D, may be given as an alternative to cow's milk⁶ Limit or avoid juice. If given, offer only as part of a meal or snack, and provide it in an open cup, not a bottle or a sippy cup. 125-175 mL (4-6 oz) per day of 100% fruit juice (not fruit drink) is the maximum⁶ Can offer water from an open cup⁶ Transition from bottle feeding to an open cup by about 12 months⁶ <p>Foods:</p> <ul style="list-style-type: none"> By 12 months, children should be eating a variety of family foods with various textures. Safe finger foods include: pieces of soft-cooked vegetables and fruit; soft, ripe fruit such as banana or pear; finely minced, ground or mashed cooked meat, deboned fish, and poultry; grated cheese and bread crusts or toast⁶ Offer iron-containing foods 2 or more times a day.⁶ See Additional Information – Iron on page 7 Introduce a variety of vegetables, fruit, grains and full-fat milk products in any sequence after iron-rich foods have been given⁶ New foods can be offered every day for most foods (vegetables, fruit, meats, most grains)⁶ New foods that are common food allergens (eggs, milk, mustard, peanuts, seafood, sesame, soy, tree nuts, wheat) can be introduced 1 at a time with a wait of 2 days before introducing other common food allergens, regardless of family history of allergy.^{5,6} Once introduced with no allergic reaction, offer these foods regularly to maintain tolerance^{6,26,27} Offer an amount of food based on the principles of responsive feeding (e.g., sensitive to child's hunger and satiety cues)⁶ Provide up to 3 larger feedings (meals) and 1-2 smaller feedings (snacks) per day, depending on the child's appetite⁶ Avoid honey until 1 year of age, including pasteurized or cooked⁶ <p><small>*If parent/caregiver has made the informed decision to formula feed, see Additional Information – Selecting infant formula on page 6</small></p> <p>RED FLAGS</p> <ul style="list-style-type: none"> Growth concerns. See Additional Information – Growth monitoring on page 5 Does not consume iron-rich foods daily⁶ By 9 months, lumpy textures have not been introduced or consumed⁶ Consumes > 750 mL (24 oz) of cow's or goat's milk a day and/or >175 mL (6 oz) of juice a day⁶ Consumes skim or low-fat cow's or goat's milk as main milk source⁶ Consumes vegetarian beverages (e.g., soy, rice, almond) or homemade formula as main milk source⁶ Consumes fruit drinks/punch, sports drinks, pop or beverages containing artificial sweeteners or caffeine (e.g., coffee, tea, hot chocolate)⁶ Not supervised during feeding⁶ Feeding is forced or restricted⁶

Pediatric Nutrition Guidelines (Birth to Six Years) for Health Professionals

This document outlines evidence-based nutrition and feeding guidelines and red flags for healthy, full-term infants and children up to six years of age. Further investigation, including possible referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up, may be warranted for infants and children who do not meet guidelines or present with red flags.

12-24 Months	
<p>MILESTONES</p> <ul style="list-style-type: none"> Growth slows compared with the first year resulting in decreased appetite and erratic and unpredictable food intake³ Unfamiliar foods are often rejected the first time³ <p>12-18 months:</p> <ul style="list-style-type: none"> Acquires full chewing movements⁶ <p>By 24 months:</p> <ul style="list-style-type: none"> Eats most foods without coughing and choking² Eats most of the same foods as the rest of the family with some extra preparation to prevent choking³ Eats with a utensil with little spilling² <p>Around 24 months:</p> <ul style="list-style-type: none"> May only consume 4 or 5 well-accepted foods³ <p>See Additional Information – Parent influences on eating habits on page 8</p>	<p>GUIDELINES</p> <p>Fluids:</p> <ul style="list-style-type: none"> Continue to breastfeed^{6*} Give a vitamin D supplement of 400 IU daily for children who are breastfed or receiving breastmilk.⁶ If not breastfed, offer 500 mL (16 oz) pasteurized, homogenized (3.25% M.F.) cow's milk each day.⁶ Pasteurized, full-fat goat's milk, with added folic acid and vitamin D, may be given as an alternative to cow's milk⁶ If not breastfed and not offered cow's milk for cultural, religious or health reasons such as galactosemia, provide soy-based commercial infant formula⁶ 2% or 1% milk is not routinely recommended. If it is given, ensure child is growing well and eating an adequate variety and quantity of nutritious foods⁶ Offer water when child is thirsty⁶ Limit or avoid juice. If given, offer only as part of a meal or snack, and provide it in a cup, not a bottle. 125-175 mL (4-6 oz) per day of 100% fruit juice (not fruit drink) is the maximum⁶ Transition from bottle-feeding to an open cup for all fluids should be completed no later than 18 months⁶ <p>Foods:</p> <ul style="list-style-type: none"> Offer a variety of family foods, such as ground, mashed or chopped foods, with a tender consistency, including finger foods⁶ Offer iron-rich foods at each meal.⁶ See Additional Information – Iron on page 7 Portion sizes should be roughly ¼-½ of a Canada's Food Guide serving size⁶ Beginning at 12 months, have a schedule of 3 small meals and 2-3 nutrient-dense snacks per day, generally follow the advice in Canada's Food Guide.^{6,12} Eat together as a family as often as possible⁶ Pediatric vitamin or mineral supplements can be used if child is not growing well, has a specific diagnosed health condition that requires it, and/or the diet is nutritionally incomplete^{3,6,12} At the Ontario Enhanced 18-Month Well-Baby Visit, use NutriSTEP[®] to identify children at nutritional risk and to guide discussion with parents around feeding. See Additional Information - NutriSTEP[®] on page 8 <p>RED FLAGS</p> <ul style="list-style-type: none"> Growth concerns. See Additional Information – Growth Monitoring on page 5 Not eating a variety of textures and family foods including iron-rich foods each day⁶ Dietary fat intake is restricted⁶ Consumes mostly breastmilk and little solid food^{12,15,16} By 18 months, has not transitioned from bottle to an open cup⁶ Consumes skim or low-fat cow's or goat's milk as main milk source⁶ Consumes vegetarian beverages (e.g. soy, rice, almond) or homemade formula as main milk source⁶ Consumes > 750 mL (24 oz) cow's or goat's milk a day and/or > 175 mL (6 oz) of juice a day⁶ Consumes fruit drinks/punch, sports drinks, pop or beverages containing artificial sweeteners or caffeine (e.g., coffee, tea, hot chocolate)⁶ Not supervised during feeding⁶ Feeding is forced or restricted⁶ At 24 months, often coughs and chokes when eating² Scores "high nutrition risk" on Toddler NutriSTEP[®] nutrition screen. See Additional Information - NutriSTEP[®] on page 8

Pediatric Nutrition Guidelines (Birth to Six Years) for Health Professionals

This document outlines evidence-based nutrition and feeding guidelines and red flags for healthy, full-term infants and children up to six years of age. Further investigation, including possible referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up, may be warranted for infants and children who do not meet guidelines or present with red flags.

2-6 Years	
<p>MILESTONES</p> <ul style="list-style-type: none"> Food consumption moderates to match a slower rate of growth¹² Eats most foods without coughing and choking² May have periods of disinterest in food¹² May be resistant to new foods¹² Progressing to adult eating pattern but needs adult modelling^{3,12} Basic nutrition education concepts can be learned^{3,13} <p>See Additional Information – Parent influences on eating habits on page 8</p>	<p>GUIDELINES</p> <p>Fluids:</p> <ul style="list-style-type: none"> Continue to breastfeed as long as child and mother want⁶ Offer 500 mL (16 oz) pasteurized, 2%, 1% or skim cow’s milk or fortified soy beverage daily^{3,14} Offer water when child is thirsty⁶ Limit or avoid juice. If given, offer only as part of a meal or snack, and provide it in an open cup, not a bottle. 125-175 mL (4-6 oz) per day of 100% fruit juice (not fruit drink) is the maximum⁶ <p>Foods:</p> <ul style="list-style-type: none"> Have a regular schedule of 3 small meals and 2-3 nutrient-dense snacks per day⁶ Follow the advice in Canada’s Food Guide. Portion sizes can be divided into smaller amounts of food served throughout the day¹⁴ Eat together as a family as often as possible^{12,13} <p>RED FLAGS</p> <ul style="list-style-type: none"> Growth concerns. See Additional Information – Growth monitoring on page 5 Does not eat a variety of foods from the 4 food groups^{13,14} Consumes large amounts of fluids and little solid food^{3,13} (> 750 mL or 24 oz milk a day^{12,13} or > 175 mL or 6 oz juice a day)¹³ Consumes mostly breastmilk and little solid food^{12,15,16} Consumes most of their milk and other beverages from a bottle or sippy cup¹⁷ Consumes fruit drinks/punch, sports drinks, pop or beverages containing artificial sweeteners or caffeine (e.g., coffee, tea, hot chocolate)^{6,13} Feeding is forced or restricted.^{3,12,13,18} For more on “picky eating” see Additional Information - Parent influences on eating habits on page 8 Rarely or never eats meals with their family^{12,18} Depends on vitamin/mineral supplement vs. variety of foods offered^{12,13} Scores “high nutrition risk” on Toddler or Preschooler NutriSTEP[®] nutrition screen. See Additional Information - NutriSTEP[®] on page 8

Additional Information

Growth monitoring

- Use the WHO Growth Charts for Canada when assessing growth.⁷ Available at: www.dietitians.ca/growthcharts
- Serial measures are more useful than unique measures and are ideal for assessing and monitoring growth patterns.⁷
- Weight-for-age, length-for-age or weight-for-length < 3rd percentile are recommended cut-off criteria for underweight, stunting (shortness), and wasting (thinness) that could be used to identify need for investigation/intervention/referral. Weight-for-length measures > 85th percentile indicate risk of overweight.⁷
- A red flag is if growth measurements plot < 3rd or > 85th percentile OR there is a sharp incline or decline in growth in serial growth measures, or a growth-line that remains flat, on the WHO Growth Charts for Canada.⁷
- Use Body Mass Index (BMI) when assessing body weight status relative to height in children ≥ 2 years old. Use age and gender-specific growth charts to determine the BMI-for-age percentile. A child’s actual BMI value will not correspond to the adult cutoffs or ranges for underweight, healthy weight, overweight and obesity. The percentile will allow for assessment of growth status, < 3rd percentile indicates wasting, while > 85th percentile indicates risk of overweight.⁷
- The overall trajectory of weight-for-age, length-for-age and weight-for-length (under 2 years) or BMI-for-age (over 2 years) will determine whether a child is tracking along the growth curves or is crossing centiles downwards or upwards. The direction of serial measurements on the curve is more important than the actual percentile.⁷
- The Fenton growth charts are recommended for preterm infants and have been revised to accommodate the WHO Growth Standard and reflect actual age instead of completed weeks.¹⁹ Fenton growth charts are available at: <http://www.ucalgary.ca/fenton/2013chart>

Pediatric Nutrition Guidelines (Birth to Six Years) for Health Professionals

This document outlines evidence-based nutrition and feeding guidelines and red flags for healthy, full-term infants and children up to six years of age. Further investigation, including possible referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up, may be warranted for infants and children who do not meet guidelines or present with red flags.

Infant formula

- For infants who are not exclusively fed breastmilk and whose parents have made the informed decision to provide infant formula, select a commercial infant formula based on the infant's medical and family's cultural/religious needs.^{5,6}
- Since it is difficult to reverse the decision to stop breastfeeding, offer breastfeeding supports as needed (e.g., local health unit or local breastfeeding clinics).⁵
- There is no established superiority for commercial follow-up infant formulas for infants older than 6 months.⁵
- For most children, 12 months and older, there is no indication for the use of commercial infant formulas beyond 12 months.⁶

Infant formula type	Indications for use	Notes
Cow's milk-based	<ul style="list-style-type: none"> • Standard breastmilk substitute for healthy-term infants⁵ 	<ul style="list-style-type: none"> • Iron in infant formula ranges from 0.4-1.3 mg per 100 mL⁵ • Choose the higher iron range for those infants at high risk for iron deficiency⁵
Partially hydrolyzed cow's milk-based	<ul style="list-style-type: none"> • None⁵ 	<ul style="list-style-type: none"> • Contraindicated for infants with cow's milk protein allergy⁵ • No advantage over standard cow's milk-based infant formulas on the digestive system⁵ • Potential benefit for reduced risk of allergic reaction to cow's milk protein only if infant formula is made from 100% partially hydrolyzed proteins⁵
Lactose-free	<ul style="list-style-type: none"> • None⁵ 	<ul style="list-style-type: none"> • Contraindicated for infants with galactosemia, congenital lactase deficiency and cow's milk allergy⁵ • No advantage over cow's milk-based infant formulas, even in the case of acute gastroenteritis⁵ • Ineffective for the dietary treatment of colic⁵
Soy-based	<ul style="list-style-type: none"> • Galactosemia⁵ • Congenital lactase deficiency⁵ • Cultural or religious reasons⁵ 	<ul style="list-style-type: none"> • May consider for cow's milk protein allergy if diagnosis for non-IgE-mediated cow's milk protein allergy can be ruled out⁵ • No evidence that soy isoflavones adversely affect development⁵
Hypoallergenic	<ul style="list-style-type: none"> • Physician-confirmed food allergies or malabsorption syndromes that cannot tolerate formula based on intact cow's milk protein or soy protein⁵ 	<ul style="list-style-type: none"> • Hypoallergenic formulas are based on extensively hydrolyzed protein⁵ • For infants experiencing allergic reactions on extensively hydrolyzed proteins, an amino acid-based infant formula may be recommended⁵

Preparing infant formula

- Liquid infant formulas (liquid concentrate and ready-to-feed) are sterile and are the safest choice for higher-risk infants who are formula fed.⁵ Powdered infant formula can be used if prepared properly.⁵
- Up to 6 months, all feeding equipment should be washed with soap and warm water, then boiled in clean water for 2 minutes.⁵ Beyond 6 months, refer to manufacturer's instructions.⁶
- Safe water sources include fluoridated municipal tap water or commercial bottled spring or tap water (avoid carbonated, mineral or distilled water).⁵ Well water that is regularly tested for safety is also optional.⁵ If water is naturally high in fluoride (higher than the guideline of 1.5 mg/L), another water source is recommended.⁵ Up to 6 months, all water sources used for infant formula preparation should be made safe by boiling it for 2 minutes.⁵ Beyond 6 months, refer to manufacturer's instructions.⁶
 - **Ready-to-feed** - No additional water required.²⁰
 - **Liquid concentrate** - Mix with previously boiled water.⁵ Follow the manufacturer's instructions on preparation.⁵
 - **Powdered** - If the powdered infant formula will be fed immediately after preparation, it is safe to mix with previously boiled water that has been cooled to room temperature.⁵ If preparing more than one bottle in advance, mix with very hot water (boiled and cooled to no less than 70°C) to kill any harmful bacteria.⁵
- Any prepared formula can be stored in the refrigerator for up to 24 hours.²⁰
- Any type of formula should be used within 2 hours from the start of a feeding and any leftovers should be discarded.⁵

Pediatric Nutrition Guidelines (Birth to Six Years) for Health Professionals

This document outlines evidence-based nutrition and feeding guidelines and red flags for healthy, full-term infants and children up to six years of age. Further investigation, including possible referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up, may be warranted for infants and children who do not meet guidelines or present with red flags.

Food allergies

- The incidence of food allergy has increased dramatically over the years, affecting 1% to 10% of children worldwide. There is no evidence that delaying the introduction of any specific food beyond 6 months of age helps to prevent allergy. Observational research appears to suggest that early introduction of potentially allergenic foods (at 4 to 6 months of age) in infants at high risk for developing allergic conditions might provide a form of protection and help prevent allergy, but more research is needed.^{26,27} For infants with a family history of food allergy, approach each case on an individual basis.⁶

Vitamin D

- Give infants or children, less than 24 months of age who are breastfed or receiving breastmilk, a vitamin D supplement of 400 IU daily until the infant's diet includes \geq 400 IU per day of vitamin D from dietary sources.^{5,6} It is recommended that children 2 years of age and older consume 500 mL (2 cups) of cow's milk and follow an eating pattern based on Canada's Food Guide.⁶
- Food sources of vitamin D include: fortified infant formula - 100 IU in 250 mL (1 cup); cow's milk - 100 IU in 250 mL (1 cup); salmon - 103 IU in 30 g (1 oz); egg yolk - 25 IU in one yolk; fortified margarine - 25 IU in 5 mL (1 tsp).²¹

Iron

- The risk of iron deficiency can be reduced with regular consumption of iron-rich foods such as meat and meat alternatives and iron-fortified cereal.^{5,6} Pallor, poor appetite, irritability, and slowed growth and development are later signs of iron deficiency.⁶
- The iron from meat sources (heme) is better absorbed than iron from non-meat sources (non-heme). Overall iron absorption is greater when heme and non-heme sources are eaten together. Daily consumption of foods rich in vitamin C, such as fruits and vegetables, can also help enhance absorption of iron from non-heme sources.⁶
 - Heme iron – beef, chicken, turkey, pork, fish
 - Non-heme iron – beans, lentils, chickpeas, tofu, eggs, fortified grains

Choking prevention

- Children younger than 4 years of age are at higher risk of choking. Parents and caregivers can reduce the risk of choking by: being aware of child's ability to chew and swallow, supervising eating, and knowing how to respond if choking occurs.⁶
- Gagging is a natural reflex that helps older infants to avoid choking. Occasionally, food sticks to the back of the tongue or falls over the back of the mouth before the swallow is triggered, resulting in the protective action of a gag or cough.⁶
- As long as an infant or child is attentive, sitting upright and is free from distractions, the risk of choking is the same as for an adult.⁶
- Some food shapes and textures should not be offered to children younger than 4 years, including, hard candies or cough drops, gum, popcorn, marshmallows, whole nuts, seeds, fish with bones and snacks using toothpicks or skewers.⁶
- To reduce the risk of choking, dice or cut lengthwise hot dogs or sausages, grate raw carrots or hard fruits such as apples, remove pits from fruits, chop grapes, thinly spread nut butters on crackers or toast, and finely chop foods that are fibrous or stringy in texture such as celery, pineapple or oranges.⁶

Fish consumption and methylmercury

- Fatty fish is a good source of the omega-3 fats EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid). While the optimal amount of EPA and DHA for infants and young children has not been determined, offer fish, as a good food source, and work up to 2 servings per week as a general guideline by 24 months of age.⁶
- Certain types of fish should be avoided, or at least limited to no more than 75 grams per month, because of the risk of overexposure to mercury. These fish include fresh or frozen tuna, shark, swordfish, marlin, orange roughy and escolar.⁶
- Limit consumption of the following high mercury containing fish - fresh/frozen tuna, shark, swordfish, escolar, marlin, orange roughy, and canned albacore (white) tuna as follows:²²
 - **< 1 year of age** - 40 g per month of these fresh/frozen types of fish or 40 g per week of canned albacore tuna
 - **1 to 4 years of age** - 75 g per month of these fresh/frozen types of fish or 75 g per week of canned albacore tuna
 - **5 to 11 years of age** - 125 g per month of these fresh/frozen types of fish or 150 g per week of canned albacore tuna

Pediatric Nutrition Guidelines (Birth to Six Years) for Health Professionals

This document outlines evidence-based nutrition and feeding guidelines and red flags for healthy, full-term infants and children up to six years of age. Further investigation, including possible referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up, may be warranted for infants and children who do not meet guidelines or present with red flags.

NutriSTEP® - Nutrition Screening Tool for Toddlers and Preschoolers

- Toddler NutriSTEP® and Preschooler NutriSTEP® are validated Canadian nutrition risk screening questionnaires for toddlers 18-35 months and preschoolers 3-5 years.
- Screens children for food and fluid intake, factors affecting eating behaviour (e.g., Does the parent allow the child to decide how much to eat? Can the parents afford to buy sufficient food?), physical growth (e.g., parent's comfort level with how the child is growing), physical activity and sedentary behaviour.
- Takes parents less than 10 minutes to complete.
- Use NutriSTEP® to identify children at nutritional risk and to initiate a discussion and educate parents around feeding.
- Toddler NutriSTEP® is available in English and French. Preschooler NutriSTEP® is available in English, French, Simplified Chinese, Traditional Chinese, Punjabi, Vietnamese, Tamil and Spanish.
- The screens are available for free in Ontario through local health units who hold a license or you can obtain a license through Flintbox Technologies at www.flintbox.com
- Alternately, you can direct parents to access Nutri-eSTEP at www.nutritionscreen.ca to complete the screen on their own.
- Dietitian support for parents in Ontario completing NutriSTEP® is through EatRight Ontario at 1-877-510-510-2 or www.EatRightOntario.ca

Parent influences on eating habits

Early childhood food experiences are critical to the development of healthy eating habits later in life.²³ The early childhood years are a time to discover new foods and to develop an appreciation for healthy eating. Parents and caregivers play a role in a child's acceptance of a wider variety of foods.⁶ The following discussion points can be especially effective when counselling parents of picky eaters:

- The development of healthy eating skills is a shared responsibility:^{6,24}
 - **Birth to 6 months** - Parents decide what milk source to provide. The infant, with infant-led or on-cue feeding, decides *when, where* and *how much* they are fed⁶
 - **6 months and older** - Parents provide a selection of nutritious foods and milk source, and begin to become responsible for *when* and *where* the child is fed. By 12 months, parents take over the responsibility for *when* and *where* the child is fed by providing regular meals and snacks. Parents and caregivers need to trust the child's ability to decide how much to eat and whether to eat.⁶
- In a non-controlling, non-coercive environment, healthy children have the ability to self-regulate the amount of food and energy consumed.²⁵ Children will compensate for eating less on some days or at a particular meal by eating more at other meals.⁶ Avoid distractions such as toys, books or screens during mealtimes.^{12,13}
- Pressuring babies and children to eat through prodding, scolding, punishment, pleading, bribing, or coercing (e.g., "clean your plate")¹² or using excessive verbal encouragement (e.g., "come on, you've tried it before") may lead to negative attitudes about eating and poor eating habits, as well as excessive feeding and excess weight gain.⁶
- Restricting higher-fat, energy-dense foods due to concern about overeating may adversely affect self-regulation and actually increase the amount of foods the child consumes.^{6,23}
- Children should be offered small portions of foods initially, along with the opportunity to ask for more.⁶
- Children should be provided with opportunities and support for mastering self-feeding skills with the understanding that messy mealtimes are part of the learning process.⁶
- 15-20 minutes is an appropriate length of time for toddlers and preschoolers to stay at the table.³ When mealtime is over, the food should be removed.¹²
- It is common to offer a new food more than 10 times before a child will accept it. Reassure parents and caregivers that this behaviour is normal. Advise them to keep offering these foods and wait for the child to try it on their own.⁶
- Children should not drink an excessive amount of milk or juice or eat or drink between meals and snacks, except water. Both practices lead to eating less at mealtime.^{3,12}
- Eating with the family provides the child with a pleasurable, social experience and the opportunity to develop healthy eating habits and learn skills through imitation. Children are more likely to try and enjoy a variety of foods when they are offered the same foods the rest of the family are eating.^{6,12}
- If a child generally seems happy and healthy and their growth is normal, picky eating behaviours and temporary changes in appetite should not cause concern.¹² Discuss normal growth and development with families. Reassure them that each child has their own pattern of growth. Regular measurements of the child's growth over time will help show whether they are consuming adequate amounts of food.⁶

Pediatric Nutrition Guidelines (Birth to Six Years) for Health Professionals

This document outlines evidence-based nutrition and feeding guidelines and red flags for healthy, full-term infants and children up to six years of age. Further investigation, including possible referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up, may be warranted for infants and children who do not meet guidelines or present with red flags.

References

1. Groh-Wargo S, Thompson M, Hovasi Cox J, Hartline JV. 2000. Nutrition Care for High Risk Newborns. Precept Press Inc.
2. Nipissing District Developmental Screen Inc. 2011. Nipissing District Developmental Screen. Available from: www.ndds.ca/ontario.
3. American Academy of Pediatrics. 2009. Pediatric Nutrition Handbook (6th Ed.). Kleinman R. Editor.
4. Rourke L, Rourke D, Rourke J. Feb, 2014. Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance Available from: http://rourkebabyrecord.ca/pdf/RBR2014Ont_Eng.pdf
5. Health Canada, Canadian Paediatric Society, Dietitians of Canada, and Breastfeeding Committee of Canada. Nutrition for Healthy Term Infants: Recommendations from Birth to Six Months. [Internet]. Ottawa. Minister of Public Works and Government Services. 2012. [Cited July, 2014]. Available from: www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/recom/index-eng.php.
6. Health Canada, Canadian Paediatric Society, Dietitians of Canada, and Breastfeeding Committee of Canada. Nutrition for Healthy Term Infants: Recommendations from Six to 24 Months. [Internet]. Ottawa. Minister of Public Works and Government Services 2014. [Cited July 2014]. Available from: www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/recom/recom-6-24-months-6-24-mois-eng.php.
7. Dietitians of Canada, Canadian Paediatric Society, The College of Family Physicians of Canada, Community Health Nurses of Canada, Promoting Optimal Monitoring of Child Growth in Canada: Using the New WHO Growth Charts. [Internet] Dietitians of Canada. 2010. [Cited July 2014]. Available from : www.dietitians.ca/Downloadable-Content/Public/tcg-position-paper.aspx.
8. Boyce JA, Assa'ad A, Burks AW, Jones SM, Sampson HA, Wood RA, et al. Guidelines for the Diagnosis and Management of Food Allergy in the United States: Report of the NIAID-Sponsored Expert Panel. The Journal of Allergy and Clinical Immunology [Internet]. 2010. [Cited July, 2014]; 126(6): S1-S58. Available from: [www.jacionline.org/article/S0091-6749\(10\)01566-6/fulltext](http://www.jacionline.org/article/S0091-6749(10)01566-6/fulltext).
9. Dietitians of Canada. Practice-based Evidence in Nutrition (PEN). Infant Nutrition – Complementary Feeding Evidence Summary. 2014. [Cited June 2014]. Access only by subscription www.pennutrition.com/KnowledgePathway.aspx?kpid=2503&trid=2514&trcatid=42.
10. Delaney AL, Arvedson JC. Development of swallowing and feeding: prenatal through first year of life. Developmental Disabilities Research Reviews. 2008 14:105-117.
11. Texas Children's Hospital Nutrition Committee. 2008. Texas Children's Hospital Pediatric Nutrition Reference Guide 8th ed. Bunting D, D'Souza S, Nguyen J, Phillips S, Rich S, Trout S, Editors.
12. Leung AKC, Marchand V, Sauve, RS. Canadian Paediatric Society. The 'picky eater': The toddler or preschooler who does not eat. Paediatr Child Health. 2012 17(8): 455-57. Available from: www.cps.ca/en/documents/position/toddler-preschooler-who-does-not-eat.
13. Dietitians of Canada. Practice-based Evidence in Nutrition (PEN). Toddler and Preschool Nutrition Knowledge Pathway (2012). [Cited May, 2014]. Access only by subscription www.pennutrition.com/KnowledgePathway.aspx?kpid=3805&trid=19421&trcatid=38.
14. Health Canada. Eating Well with Canada's Food Guide: A Resource for Educators and Communicators. [Internet]. 2011. Available from www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/pubs/res-educat-eng.pdf.
15. Baker R, Greer F. Clinical Report Diagnosis and Prevention of Iron Deficiency and Iron-Deficiency Anemia in Infants and Young Children (0-3 Years of Age). Pediatrics [Internet] 2010 [Cited July, 2014] DOI:10.1542/peds.2010-2576. Available from: <http://pediatrics.aappublications.org/content/early/2010/10/05/peds.2010-2576.full.pdf+html>
16. Coulthard H, Harris G, Emmett P. Delayed Introduction of lumpy foods to children during the complementary feeding period affects child's food acceptance and feeding at 7 years of age. Maternal Child Nutrition 2009 5:75-85.
17. Maguire J, Birken C, Jacobson S, Peer M, Taylor C, Khambalia A, et al. Office-Based Intervention to Reduce Bottle Use Among Toddler: TARget Kids! Pragmatic, Randomized Trial. Pediatrics [Internet] 2010. [Cited July, 2014]; 126:e343-e350. DOI:10.1542/peds.2009-3583.
18. Satter E. 2008. Secrets of Feeding a Healthy Family. Second Edition. Kelcy Press.
19. Fenton T, Kim J. BMC Pediatrics. A systematic review and meta-analysis to revise the Fenton growth chart for preterm infants [Internet] 2013 [Cited July, 2014]. Available from www.biomedcentral.com/1471-2431/13/59.
20. Government of Canada. [Internet] 2012. [Cited July, 2014]. Preparing and handling powdered infant formula. Available from: <http://healthycanadians.gc.ca/kids-enfants/food-aliment/formula-nourisson-eng.php>.
21. Health Canada. [Internet] 2010. [Cited July, 2014]. Canadian Nutrient Data File. Available from: www.hc-sc.gc.ca/fn-an/nutrition/fiche-nutri-data/index-eng.php.
22. Health Canada. [Internet] 2011. [Cited July, 2014]. Mercury in Fish: Questions and Answers. Available from: www.hc-sc.gc.ca/fn-an/securit/chem-chim/envIRON/mercur/merc_fish_qa-poisson_qr-eng.php.
23. Dietitians of Canada. Practice-based Evidence in Nutrition (PEN). Toddler and Preschool - Influences on Appetite and Eating Behaviour Practice Guidance Summary. (2014). [Cited May 2014]. Access only by subscription. www.pennutrition.com/KnowledgePathway.aspx?kpid=7699&trcatid=43&trid=7808
24. Satter E. Elynn Satter's division of responsibility in feeding. [Internet] 2014. [Cited May 2014] Available from: <http://ellynsatterinstitute.org/dor/divisionofresponsibilityinfeeding.php>.
25. Johnson SL. Improving preschoolers' self-regulation of energy intake. Pediatrics. [Internet]. 2000. [Cited July, 2014]; 106(6): 1429-1435. Available from: <http://pediatrics.aappublications.org/cgi/content/abstract/106/6/1429>
26. Chan ES, Cummings C. Canadian Paediatric Society. Dietary exposures and allergy prevention in high-risk infants. Paediatr Child Health [Internet] 2013. [Cited July, 2014]; 18(10):545-9. Available from: www.cps.ca/documents/position/dietary-exposures-and-allergy-prevention-in-high-risk-infants
27. Chin B, Chan ES, Goldman RD. Early exposure to food and food allergy in children. Can Fam Physician [Internet] 2014 [Cited July, 2014]; April 2014 60: e208-e210. Available from: www.cfp.ca/content/60/4/338.long